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Editorial

Internet of Things, Linked Data, and Citizen Participation as Enablers of Smarter Cities

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Web of Data and Internet of Things are enabling technologies that pave the way for next generation urban services. These services will play a crucial role in future interactions between the city and the citizens, giving them the impression of facing Smarter Cities, that is, cities that not only do manage their resources more efficiently but also are aware of the citizen needs. The aim of this special issue has been to bring together research results on the areas of Linked Data, Internet of Things, and smartphone-mediated interaction to assemble service ecosystems that may give place to Smarter Cities, that is, those that are actually aware of the real needs and demands of their citizens.

This special issue includes 6 articles covering the topics of *crowdsourcing*, that is, cooperation of individuals and IT systems to provide solutions where machine automation cannot reach *data correlation of big volumes of data* to enhance mobility in cities, *analysis of access logs to both social networks and IT systems* in order to predict the next location or the next data chunk to be requested by a user, and, finally, *novel AI techniques to explore interdependencies among different factor*s to help in the decision making process within a city.

The article entitled "CooperSense: A Cooperative and Selective Picture Forwarding Framework Based on Tree Fusion" by H. Chen et al. explores the topic of mobile crowd photographing for local sensing, allowing encountering participants to only exchange those pictures relevant to each other by applying a tree based selection mechanism.

The article "A Context-Driven Worker Selection Framework for Crowd-Sensing" by J. Wang et al. proposes a novel worker selection framework, called WSelector, to more precisely select appropriate workers by taking various contexts into account. To achieve this goal, it first provides programming time support to help task creators define constraints. Then its runtime system adopts a two-phase process to select workers who are not only qualified but also more likely to undertake a crowd-sensing task.

The article entitled "Urban Impedance Computing Based on Check-In Records" by Z. Yu et al. analyses the concept of urban impedance, that is, the travelling cost between the origin and destination locations as an important indicator of urban accessibility. For that, it combines check-in records obtained from mobile social networks and road networks data to calculate and adjust the various parameters of the model, including path length, number and angle of turns, number and direction of junctions, and population density.

The article "Twitter Can Predict Your Next Place of Visit" by A. Chauhan et al. proposes a predictor for users' next place of visit using their past tweets. For that, it computes the probabilities of visiting different types of places using a bank of binary classifiers and Markov models.

The article "Prefetching Scheme for Massive Spatiotemporal Data in a Smart City" by L. Xiong et al. explores access patterns to develop a prefetching scheme, which can effectively improve system I/O performance and reduce

user access latency. A prefetching scheme based on spatial-temporal attribute prediction, called STAP, is developed which maps the history of user access requests to the spatiotemporal attribute domain by analysing the characteristics of spatiotemporal data in a smart city. Notably, the STAP scheme mines the user access patterns and constructs a predictive function to predict the user's next access request.

Finally, the article "Factor Knowledge Mining Using the Techniques of AI Neural Networks and Self-Organizing Map" by P.-K. Wu and T.-C. Hsiao offers a hybrid technique combining artificial neural networks (ANN) and self-organizing maps (SOM) as a way to explore factor knowledge, namely NNSOM. This technique is applied to analyse the most important factor to organize a night market in Taiwan.

Overall, this special issue explores how to bring together machine and human intelligence in order to understand better data flows in the context of a city and support the decision making process within the cities of the future.

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